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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,874	09/10/2003	Samir Kumar	D/A2425	3222

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ROCHESTER, NY 14644

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,874

Applicant(s)

KUMAR ET AL

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-21 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-21 and 23-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. Claims 1-8, 10-21, and 23-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. No support could be found in the disclosure as originally filed for the end point "below about 5" weight percent newly added to independent claims 1, 27, 28, 30, and 31.

3. Claims 1-8, 10-21, and 23-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The court held that claims reciting "at least about" were invalid for indefiniteness where there was close prior art and there was nothing in the specification, prosecution history, or the prior art to provide any indication as to what range of specific activity is covered by the term "about." See *Amgen, Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991) and MPEP 2173.05(b). In the instant case, the phrase "below about 5" in independent

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claims 1, 27, 28, 30, and 31 is analogous to "at least about" and there is close prior art since Drappel et al. teach an endpoint of "about 5." Therefore, the phrase "below about 5" in independent claims 1, 27, 28, 30, and 31 renders all the claims indefinite because the metes and bounds of the claims are ill defined.

Claim Rejections - 35 USC § 102

5. Claims 1-6, 10-21, 23, 24, and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach a carrier comprising a core and a polymer coating which comprises a mixture of a coating polymer and a conductive polymer (column 5, lines 47-49). The conductive polymer may be polyaniline having a weight average molecular weight of about 10,000-400,000, about 20,000-100,000, or about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 (column 5, lines 56-62). The coating polymer may be formed of a mixture of polymers, including polymers that are not in close proximity in the triboelectric series and mixtures of about 2 to 7 polymer (column 5, lines 49-55). The conductive polymer may comprise as little as about 5 wt% of the total weight of the coating (column 5, line 66-column 6, line 5). The core has a diameter of about 30 to 100 μm (column 6, lines 6-7). The core is made of iron, steel, or a ferrite (column 6, lines 7-8). The coating polymer may be, for example, a styrene polymer, polymethyl methacrylate, or a mixture of polymethyl methacrylate and polytrifluoroethyl methacrylate (column 6, lines 8-19). The polymer coating is present in an amount of from about 0.5-10 wt% or about 1-5 wt% of the carrier (column 6, lines 19-22). The carrier may have a conductivity of about 10^{-15} to 10^{-4} (ohm-cm) $^{-1}$ and a triboelectric charge value of about -60 to 60

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microcoulombs/gram (column 6, lines 22-26). The carrier may be combined with a toner to produce a developer (column 7, lines 12-13). The toner may comprise a thermoplastic resin, colorant, and other optional components (column 7, lines 15-18). The conductive polymer may be any of a number of commercially available conductive polymers (column 8, lines 62-64). Suitable commercially available conductive polymers include Eeonomer (column 9, lines 56-60), which is the same material used in the instant invention (see pages 13 and 14 of the instant specification, particularly page 14, lines 6-9 in which Eeonomer is described as being comprised of intrinsically conductive polypyrrole or polyaniline polymers deposited into carbon black matrix by an in situ polymerization.

Regarding the newly added limitation requiring the conductive polymer to be below about 5 wt% of the polymer coating, Drappel et al. teach a lower limit of about 5 wt%. Because "about 5" encompasses values that are both above and below 5, "below about 5" also reads on values that are above and below 5. For example, "about 5" can be said to include 7 and 6 is below 7, therefore 6 can read on "below about 5."

Claim Rejections - 35 USC § 103

6. Claims 1-8, 10-21, 23, 24, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509).

Drappel et al. teach all the limitations of claims 1-6, 10-21, 23, 24, and 26-30 as outlined above. Drappel et al. teach that the conductive polymer is present in as little as about 5 wt% based on the weight of the coating. As outlined above, the lower limit of about 5 at least overlaps values of below about 5. In the event that one skilled in the art would not readily

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envisage a coating comprising about 5 wt% of conductive polymer, it would have been obvious to select any value from the disclosed range, including about 5 wt% conductive polymer.

Additionally, one skilled in the art would be motivated to use values less than about 5 wt% because, in reciting a lower limit of about 5 wt%, Drappel et al. suggests that values below 5 wt% may be used. The claimed endpoint of below about 5 wt% and prior art endpoint of about 5 wt% are so close that no practical distinction between the two can be made and one skilled in the art would have expected them to have the same properties. See MPEP 2144.05.

Regarding claims 7 and 8, Drappel et al. do not teach that the conductive polymer is polypyrrole having molecular weights as recited in claims 7 and 8.

However, Drappel et al. do teach that the polyaniline as the conductive polymer may have a weight average molecular weight of about 10,000-400,000, about 20,000-100,000, or about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 (column 5, lines 56-62). Drappel et al. further disclose that polyaniline and polypyrrole are functionally equivalent materials for the purpose of their invention (column 7, lines 24-28).

One skilled in the art would be motivated to use a polypyrrole having a weight average molecular weight of about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 in place of the polyaniline having a weight average molecular weight of about 22,000-75,000 with an M_w/M_n ratio of about 1.4 to 2 taught by Drappel et al. since Drappel et al. teach the equivalence of polyaniline and polypyrrole.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drappel et al. (U.S. Patent 6,391,509) in view of Viswanathan et al. (U.S. Patent 6,764,617).

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Drappel et al. teach all the limitations of claim 25, as outlined above, except for the use of a polyaniline attached to lignin. However, Drappel et al. do teach that the polyaniline may be doped with an organic acid, preferably a sulfonic acid (column 8, lines 65-67).

Viswanathan et al. is directed to a composition comprising polyaniline doped with a lignosulfonic acid compound (column 1, lines 61-64). Lignosulfonic acid compounds are abundant and inexpensive (column 5, lines 15-16).

One skilled in the art would be motivated to use a lignosulfonic acid as the sulfonic acid of dopant Drappel et al. because it is inexpensive and known to be suitable for doping polyaniline.

Response to Arguments

8. Applicant's arguments filed 02 June 2005 have been fully considered but they are not persuasive.

The applicants argue that the lower limit of about 5 wt% of Drappel et al. is outside the amended range of below about 5 wt%.

This is not persuasive because the values "about 5" and "below about 5" overlap each other. About 5 is a flexible value that includes values above 5 and below 5. This means that values below the value of about 5 would still encompass values above and below 5. For example: about 5 encompasses 7, 6 is below 7, therefore 6 is below a value of about 5. The claimed endpoint of below about 5 wt% and the prior art end point of above 5 wt% are either identical, overlapping, or so close that no practical distinction between the endpoints can be made.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

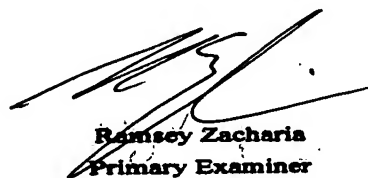
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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Ramsey Zacharia
Primary Examiner
Tech Center 1700